Amendments to the Claims:

This listing of claims replaces all previous versions and listings of claims in this application.

1-59. (Canceled)

60. (Currently Amended) A hypermutable, transgenic mouse wherein the germ and somatic cells of said mouse express a transgene comprising a ~~transgenic~~ polynucleotide encoding a dominant negative form of a human PMS2 mismatch repair protein, wherein the protein comprises the firsts 133 amino acids of human PMS2, said polynucleotide operably linked to a promoter, wherein said cells that express said transgene are hypermutable.

61. (Currently Amended) A hypermutable, transgenic mouse produced by a process comprising the steps of:

introducing a transgene comprising a ~~transgenic~~ polynucleotide encoding a dominant negative form of a human PMS2 mismatch repair protein into a fertilized mouse egg, wherein the protein comprises the first 133 amino acids of human PMS2, said polynucleotide operably linked to a promoter ~~whereby said protein is expressed and said fertilized mouse egg becomes hypermutable~~;

implanting the fertilized egg into a pseudopregnant female; and

allowing said mouse egg to develop into a hypermutable, transgenic mouse comprising cells that express the transgene, wherein said cells that express the transgene are hypermutable.

62-70. (canceled)

71. (Currently Amended) A method for generating a mutation in a gene of interest comprising the steps of:

introducing a transgene comprising a ~~transgenic~~ polynucleotide encoding a dominant negative form of a human PMS2 mismatch repair protein into a fertilized mouse egg, wherein the protein comprises the first 133 amino acids of human PMS2, said polynucleotide operably linked to a promoter ~~whereby said protein is expressed and the fertilized mouse egg becomes hypermutable~~;

implanting the fertilized egg into a pseudopregnant female;

allowing said fertilized mouse egg to develop into a hypermutable, transgenic mouse comprising cells that express the transgene, wherein said cells that express the transgene are hypermutable; and

testing the mouse to determine whether the gene of interest harbors a mutation.

72. (Previously Presented) The method of claim 71 wherein the step of testing comprises analyzing a nucleotide sequence of the gene of interest.

73. (Previously Presented) The method of claim 71 wherein the step of testing comprises analyzing mRNA transcribed from the gene of interest.

74. (Previously Presented) The method of claim 71 wherein the step of testing comprises analyzing a protein encoded by the gene of interest.

75. (Currently Amended) The method of claim 71 wherein the step of testing comprises analyzing the phenotype conferred by ~~of~~ the gene of interest.

76-85. (Canceled).

86. (Currently Amended) The hypermutable, transgenic mouse of claim 61 wherein the ~~transgenic~~ polynucleotide comprises a truncation mutation at codon 134 of SEQ ID NO:1.

87. (Previously Presented) The hypermutable, transgenic mouse of claim 86 wherein the truncation mutation is a thymidine at nucleotide 424 of wild-type *PMS2* of SEQ ID NO:1.

88. (Canceled)

89. (Currently Amended) The mouse of claim 88 wherein said ~~transgenic~~ polynucleotide comprises a truncation mutation at codon 134 of SEQ ID NO:1.

90. (Previously Presented) The mouse of claim 89 wherein the truncation mutation is a thymidine at nucleotide 424 of wild-type *PMS2* of SEQ ID NO:1.

91. (Canceled)

92. (Currently Amended) The method of claim 71 wherein said ~~transgenic~~ polynucleotide comprises a truncation mutation at codon 134 of SEQ ID NO:1.

93. (Previously Presented) The method of claim 92 wherein the truncation mutation is a thymidine at nucleotide 424 of wild-type *PMS2* of SEQ ID NO:1.

94-96. (Canceled)